Patent Claims

Condensation Scalding Tunnel for Slaughter Animals

1. A scalding tunnel (2) for slaughter animals (20), such as pigs or goats, with steam-discharging nozzles (30) mounted in the scalding tunnel and along the path of conveyance (F) of the slaughter animals,
characterized in that
the nozzles (30) are multicomponent nozzles with at least one connection (40) for steam and one connection (43) for water, whereby the nozzles discharge a mixture of steam and water that is sprayed therein.

2. The scalding tunnel according to claim 1,
characterized in that
the multicomponent nozzles (30) are arranged in the scalding tunnel (2) in such a way that atmosphere present in the scalding tunnel can be circulated.

3. The scalding tunnel according to claim 1 or 2,
characterized in that
the multicomponent nozzles (30) are arranged, at least for the most part, in the base area of the scalding tunnel (2).

4. The scalding tunnel according to at least one of the preceding claims,
characterized in that
the multicomponent nozzles (30) are oriented, at least for the most part, in such a way that their discharge jet is directed with a substantial component longitudinally of the scalding tunnel (2).

5. The scalding tunnel according to at least one of the preceding claims,
characterized in that

one part of the multicomponent nozzles (30) is directed with components in the direction of conveyance (F) of the slaughter animals (20) in the scalding tunnel (2) and another part of the multicomponent nozzles (30) is directed with components opposite to the direction of conveyance (F) of the slaughter animals (20) in the scalding tunnel (2).

6. The scalding tunnel according to at least one of the preceding claims, characterized in that
in plan view, the multicomponent nozzles (30) are arranged, at least for the most part, on one longitudinal side of the scalding tunnel (2),.

7. The scalding tunnel according to at least one of the preceding claims, characterized in that
a volume control is provided for the amount of steam supplied to the multicomponent nozzles (30).

8. The scalding tunnel according to at least one of the preceding claims, characterized in that
a volume control is provided for the amount of water supplied to the multicomponent nozzles (30).

9. The scalding tunnel according to at least one of the preceding claims, characterized in that
for temperature control at least one control valve is provided for the amount of steam supplied to at least one multicomponent nozzles (30).

10. The scalding tunnel according to at least one of the preceding claims, characterized in that
only a part of the multicomponent nozzles (30) is included in the temperature control.

11. The scalding tunnel according to at least one of the preceding claims, characterized in that
all the multicomponent nozzles (30) are included in the temperature control.

12. The scalding tunnel according to at least one of the preceding claims,

characterized in that

the scalding tunnel (2) is designed without ventilators for circulating its internal atmosphere.

13. The scalding tunnel according to at least one of the preceding claims, characterized in that

the multicomponent nozzle (30) is a dual component nozzle.

14. The scalding tunnel according to at least one of the preceding claims, characterized in that

the multicomponent nozzle (30) is oriented to the horizontal in such a way that its direction of longitudinal discharge, relative to the horizontal, describes an angle α, where in particular $5° \leq \alpha \leq 15°$.

15. The scalding tunnel according to at least one of the preceding claims, characterized in that

the multicomponent nozzle (30) describes an angle β relative to the vertical with its direction of longitudinal discharge, where preferably $30° \leq \beta \leq 50°$.

16. A method for scalding slaughter animals such as pigs or goats in a scalding tunnel (2), whereby a mixture of steam and water is sprayed in the scalding tunnel, characterized in that

the mixture of steam and water is sprayed through multicomponent nozzles (30) arranged directly in the scalding tunnel (2) and to which both water and steam are directly supplied.

17. The method according to claim 16, characterized in that

a supersaturated mixture of water and steam is sprayed through the multicomponent nozzles (30).

18. The method according to claim 16 or 17, characterized in that

the temperature of the mixture sprayed through the multicomponent nozzles (30) is set such that, on discharge from the multicomponent nozzles, the mixture has a temperature T_1, where $T_1 \geq 100°$ C, in particular $T_1 \geq 120°$ C, preferably $120° \text{ C} \leq T_1 \leq 160°$ C.

19. The method according to one of the claims 16 to 18,
characterized in that
the temperature of the mixture sprayed through the multicomponent nozzles (30) is set, and/or the multicomponent nozzles are arranged in the scalding tunnel (2), such that the mixture striking the slaughter animal (20) has a temperature T_2, where in particular $55° C \leq T_2 \leq 70° C$.

20. The method according to one of the claims 16 to 19,
characterized in that
the multicomponent nozzles (30) are arranged in the scalding tunnel (2) in such a way that a circulation of the atmosphere present in the scalding tunnel is effected to such a degree that homogeneous or substantially homogeneous humidity conditions prevail in the scalding tunnel.

21. The method according to one of the claims 16 to 20,
characterized in that
the scalding tunnel (2) is operated without ventilators.

22. The method according to one of the claims 16 to 21,
characterized in that
the multicomponent nozzles (30) are supplied, at least for the most part, with steam at 2 bar to 6 bar superatmospheric pressure.

23. The method according to one of the claims 16 to 22,
characterized in that
the multicomponent nozzles (30) are supplied, at least for the most part, with steam at 120° C to 160° C.

24. The method according to one of the claims 16 to 23,
characterized in that
the multicomponent nozzles (30) are supplied, at least for the most part, with saturated or supersaturated steam.

25. The method according to one of the claims 16 to 24,
characterized in that

the multicomponent nozzles (30) are supplied, at least for the most part, with water at about 0.2 bar superatmospheric pressure.

26. The method according to one of the claims 16 to 25,

characterized in that

the dual component nozzles (30) are supplied, at least for the most part, with water having a temperature of 20° C to 70° C.